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CLAIMS

What is claimed is:

A method for processing an acoustic signal to separate the acoustic signal into a
voiced (V) component corresponding to an electrolaryngeal source and an
unvoiced (U) component corresponding to a turbulence source, the method
comprising the steps of:

digitizing the acoustic signal to produce an original stream of numerical values;

extracting a segment of consecutive values from the original stream of numerical values to produce a first group of values covering two or more periods of the electrolaryngeal source;

performing a discrete Fourier transform on the first group of values to produce a discrete Fourier transform result;

extracting a second group of values from components of the discrete Fourier transform result which correspond to an electrolaryngeal fixed repetition rate, F_0 , and harmonics thereof;

inverse-Fourier transforming the second group of values, to produce a representation of a segment of the V component;

concatenating multiple V component segments to form a V component sample stream; and

determining the U component by subtracting the V component sample stream from the original stream of numerical values.

2. A method as in Claim 1 comprising the additional steps of:

determining segments of the input acoustic signal that correspond to inter-word segments.

- 3. A method as in Claim 2 wherein the step of determining inter-word segments includes a step of determining total power in the segments and characterizing such segments with relatively low power as inter-word segments.
- 4. A method as in Claim 2 additionally comprising the steps of:

5 filtering the V component sample stream;

for segments determined to be inter-word segments, setting the corresponding values of the V component sample stream to a zero value;

adding the U component values to the altered V component sample stream values; and

producing a process acoustic sample stream from the addition of the U values and altered V values.

- 5. A method as in Claim 1 wherein the steps are performed in a digital signal processor connected in line with a telephone apparatus.
- 6. A method for processing an acoustic signal to separate the acoustic signal into inter-word and non-inter-word segments, the method comprising the steps of:

 digitizing the acoustic signal to produce an original stream of numerical values;

extracting a segment of consecutive values from the original stream of numerical values to produce a group of values;

determining an average power level for the group of values; and if the average power level of the group of values is below a threshold value, determining that the group of values corresponds to an inter-word segment of the acoustic signal.

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segment of the acoustic signal.

- 7. A method as in claim 6 additionally comprising the step of: if the average power level of the group of values is above a threshold value, determining that the group of values corresponds to a non-inter-word
- 5 8. A method as in claim 6 additionally comprising the step of:
 setting the group of values to a zero value if they correspond to an interword segment.